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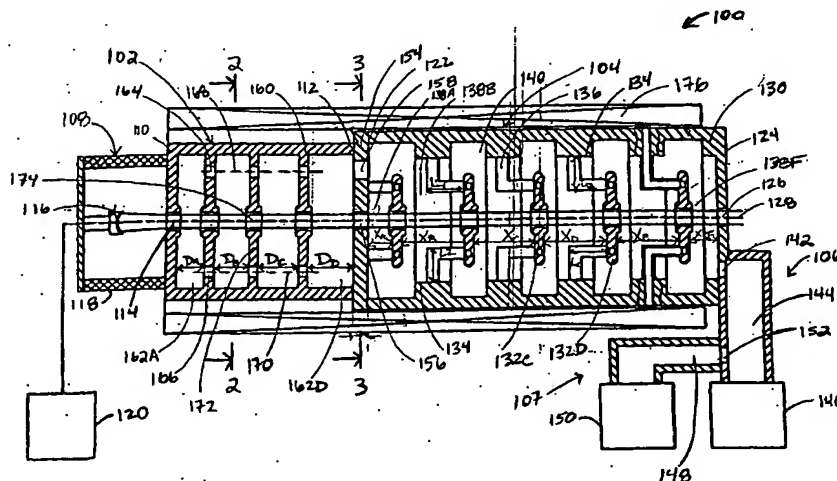
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60/418,198 11 October 2002 (11.10.2002) US
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- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, VZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
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[Continued on next page]

(54) Title: STANDING-WAVE ELECTRON LINEAR ACCELERATOR



(57) Abstract: A particle accelerator system, including apparatuses and methods, for producing a beam of bunched charged particles at high intensities and with minimal energy dispersion comprises a bunching section having a plurality of bunching cavities, an accelerating section having a plurality of accelerating and coupling cavities, and an electromagnetic drive subsystem having a single radio-frequency (RF) generator coupled to the accelerating section at a single location. The accelerating and bunching sections are directly coupled and share a common wall, which may have a resonant coupling cavity therein, such that charged particles bunch in the bunching section and travel through the common wall into the accelerating section where they are accelerated and exit the particle accelerator system as a beam of bunched charged particles. Preferably, a phase shift of one hundred-eighty degrees (180°) (or it radians) is created between the electric fields of successive bunching cavities in the bunching section.

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— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/32447

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H05H 9/00

US CL : 315/505, 507, 500, 501, 502-504

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 315/505, 507, 500, 501, 502-504

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
NONE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,316,876 B1 (TANABE) 13 November 2001 (13.11.2001), Figure 2.	1-3, 12, 20, 21, 32-34, 36-38
X	US 6,462,489 B1 (ROBERGE et al.) 08 October 2002 (08.10.2002), Figure 10.	1-5, 12, 32, 33 and 37

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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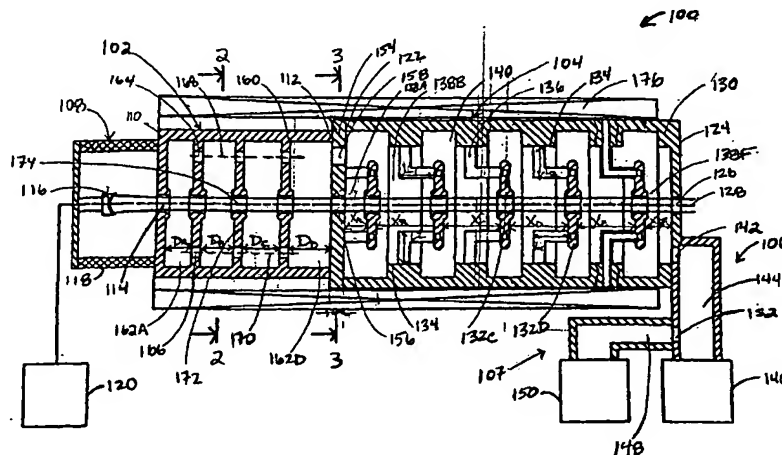
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European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
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